Abstract

Yersinia pestis is the causative pathogen of plague. This disease is still prevalent to some degree and happens sporadically in Asia, Africa, and Americas. Besides, international travel nowadays is extremely convenient and popular, and bio-terrorism is threatening the entire world. Those factors make an effective and speedy plaque control system indispensable.

The objectives of this study are four folds: to set up a standard diagnostic method for Yersinia pestis detection and identification, to prepare antigen and antibody ourselves with purification capability, to improve our currently used laboratory methods dealing with the disease to conform with the WHO standards, and to set up a comprehensive plague reference laboratory.

What we have accomplished so far are the followings: having successfully purified 17Kd F1 capsule antigen, made two strains of F1 IgG hybridoma cells in high production, used purified antibody to prepare a direct immunofluorescene assay reagent, used modern real-time PCR technology in developing a fast diagnostic test for plague detection, and established the 16S rDNA sequence as one of its identities. Furthermore, we have completed the 2004 annual serological study by ELISA on 385 field rodents trapped in the international harbor areas of this country. The results are all negative.

Along with the maturing of bacterial molecular technology, molecular detecting methods will inevitably become more important in the days to come. Therefore, our next step in research will focus on something like: how to design suitable primers and probes, and how to extract maximum DNA template from various specimens for the purposes of our laboratory screening and identification work.

Keywords：Yersinia pestis；F1 antigen；monoclonal antibody；ELISA